

Sequence listing - CHUA KY 06 - final for PCT  
SEQUENCE LISTING

<110> Chua, Kaw Yan  
Liew, Lip Nyin

<120> RECOMBINANT NUCLEIC ACID USEFUL FOR INDUCING PROTECTIVE IMMUNE  
RESPONSE AGAINST ALLERGENS

<130> 92706-58

<160> 49

<170> PatentIn version 3.2

<210> 1  
<211> 216  
<212> DNA  
<213> artificial

<220>  
<223> synthetic oligonucleotide encoding for the leader sequence, the  
transmembrane and cytoplasmic tail of mouse LAMP-1, containing  
Nhe I site 3' of the LAMP-1 leader sequence and Nde I site 5' of  
the LAMP-1 transmembrane and cytoplasmic tail sequence

<400> 1  
ctcgagccac catggccgcc cccggcgccc ggaggcccct gtcctgctg ctgctggcag 60  
gccttgacaca tggcgctagc gaattcccg ggatccatat gttgatcccc attgctgtgg 120  
gcggtgccct ggagggctg gtcctcatcg tcctcatcgc ctacctcatt ggcaggaaga 180  
ggagtcacgc cggctatcag accatctagc ggccgc 216

<210> 2  
<211> 234  
<212> DNA  
<213> artificial

<220>  
<223> chimeric gene that encodes the LAMP-1 leader sequence, the Blo  
t5 gene fragment for the H-2d-restricted Th epitope and the  
LAMP-1 transmembrane and cytoplasmic domain

<400> 2  
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aatatgttga tccccattgc tgtggcggt gccctggcag ggctggcct catcgtcctc 180  
attgcctacc tcattggcag gaagaggagt cagccggct atcagaccat ctag 234

<210> 3  
<211> 534  
<212> DNA  
<213> artificial

<220>  
<223> chimeric gene that encodes the LAMP-1 leader sequence, the  
entire Blo t 5 gene product and the LAMP-1 transmembrane and  
cytoplasmic domain

<400> 3  
atggccgccc cggcgccccg gaggcccctg ctctgctgc tgctggcagg ccttgacat 60

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ggcgctagcc aagagcacaa gccaaagaag gatgatttcc gaaacgaatt cgatcacttg 120
ttgatcgaac aggcaaacca tgctatcgaa aaggggagaac atcaattgct ttacttgcaa 180
caccaactcg acgaattgaa tgaaaacaag agcaaggaat tgcaagagaa aatcattcga 240
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aagcgaactg atcttaacat tttggaacga ttcaactacg aagaggctca aactctcagc 360
aagatcttgc ttaaggattt gaaggaaacc gaacaaaaag tgaaggatat tcaaacccaa 420
aatatgttga tccccattgc tgtggcggt gccctggcag ggctggctct catcgctctc 480
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<210> 4  
 <211> 426  
 <212> DNA  
 <213> artificial

<220>  
 <223> chimeric gene that encodes the LAMP-1 leader sequence and the entire Blo t 5 gene product

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<400> 4
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ttgatcgaac aggcaaacca tgctatcgaa aaggggagaac atcaattgct ttacttgcaa 180
caccaactcg acgaattgaa tgaaaacaag agcaaggaat tgcaagagaa aatcattcga 240
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aagcgaactg atcttaacat tttggaacga ttcaactacg aagaggctca aactctcagc 360
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aattaa 426

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<210> 5  
 <211> 849  
 <212> DNA  
 <213> artificial

<220>  
 <223> chimeric gene that encodes the LAMP-1 leader sequence, the entire Der p 1 gene product and the LAMP-1 transmembrane and cytoplasmic domain

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caaatgcgaa ctgtcactcc cattcgtatg caaggaggct gtggttcatt ttgggctttc 180
tctggtgttg ccgcaactga atcagcttat ttggcttacc gtaatcaatc attggatctt 240
gctgaacaag aattagtcga ttgtgcttcc caacacggtt gtcattggtga taccattcca 300
cgtggtattg aatacatcca acataatggt gtcgtccaag aaagctacta tcgatacgtt 360

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gcacgagaac aatcatgccg acgaccaaatt gcacaacgtt tcggtatctc aaactattgc 420  
 caaatttacc caccaaattgt aaacaaaatt cgtgaagctt tggctcaaac ccacagcgct 480  
 attgccgtca ttattggcat caaagattta gacgcattcc gtcattatga tggccgaaca 540  
 atcattcaac gcgataatgg ttaccaacca aactatcacg ctgtcaacat tgttggttac 600  
 agtaacgcac aagggtgtcga ttattggatc gtacgaaaca gttgggatac caattgggggt 660  
 gataatgggt acggttattt tgctgccaac atcgatttga tgatgattga agaatatcca 720  
 tatgttgta ttctcaatat gttgatcccc attgctgtgg gcggtgccct ggcagggctg 780  
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 accatctag 849

<210> 6  
 <211> 879  
 <212> DNA  
 <213> artificial

<220>  
 <223> chimeric gene that encodes the human tissue plasminogen activator leader sequence, the entire Der p 1 gene product and the LAMP-1 transmembrane and cytoplasmic domain

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 cgcattgcaag gcggtgcgg gtcttggttg gccttctcag gcgtggccgc gaccgagtct 240  
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 gcctcccaac acggatgtca tggggatac attcccagag gtatcgaata catccagcat 360  
 aatggcgtcg tgcaggaaag ctattaccga tacgtagcta gggagcagtc ctgccgccgt 420  
 cctaacgccc agcgcttcgg catttccaac tattgccaga tctaccccc taatgtgaac 480  
 aagatcaggg agggcctggc gcagacgcac agcgccatcg ctgtcatcat cggaatcaag 540  
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 cagccaaact atcacgcggt caacatcgtg ggttactcga acgcccaggg ggtggactac 660  
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<210> 7  
 <211> 26  
 <212> PRT  
 <213> Rat LIMP II Leader peptide

<400> 7

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Met Ala Arg Cys Cys Phe Tyr Thr Ala Gly Thr Leu Ser Leu Leu Leu  
 1 5 10 15

Leu Val Thr Ser Val Thr Leu Leu Val Ala  
 20 25

<210> 8  
 <211> 46  
 <212> PRT  
 <213> Rat LIMP II Transmembrane cytoplasmic domain

<400> 8

Leu Ile Val Thr Asn Ile Pro Tyr Ile Ile Met Ala Leu Gly Val Phe  
 1 5 10 15

Phe Gly Leu Ile Phe Thr Trp Leu Ala Cys Arg Gly Gln Gly Ser Thr  
 20 25 30

Asp Glu Gly Thr Ala Asp Glu Arg Ala Pro Leu Ile Arg Thr  
 35 40 45

<210> 9  
 <211> 26  
 <212> PRT  
 <213> Human LIMP II Leader peptide

<400> 9

Met Gly Arg Cys Cys Phe Tyr Thr Ala Gly Thr Leu Ser Leu Leu Leu  
 1 5 10 15

Leu Val Thr Ser Val Thr Leu Leu Val Ala  
 20 25

<210> 10  
 <211> 46  
 <212> PRT  
 <213> Human LIMP II Transmembrane cytoplasmic domain

<400> 10

Leu Ile Ile Thr Asn Ile Pro Tyr Ile Ile Met Ala Leu Gly Val Phe  
 1 5 10 15

Phe Gly Leu Val Phe Thr Trp Leu Ala Cys Lys Gly Gln Gly Ser Met  
 20 25 30

Asp Glu Gly Thr Ala Asp Glu Arg Ala Pro Leu Ile Arg Thr  
 35 40 45

<210> 11  
 <211> 26  
 <212> PRT  
 <213> Mouse LIMP II Leader peptide

<400> 11

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Met Gly Arg Cys Cys Phe Tyr Thr Ala Gly Thr Leu Ser Leu Leu Leu  
 1 5 10 15

Leu Val Thr Ser Val Thr Leu Leu Val Ala  
 20 25

<210> 12  
 <211> 46  
 <212> PRT  
 <213> Mouse LIMP II Transmembrane cytoplasmic domain

<400> 12

Leu Val Val Thr Asn Ile Pro Tyr Ile Ile Met Ala Leu Gly Val Phe  
 1 5 10 15

Phe Gly Leu Val Phe Thr Trp Leu Ala Cys Arg Gly Gln Gly Ser Met  
 20 25 30

Asp Glu Gly Thr Ala Asp Glu Arg Ala Pro Leu Ile Arg Thr  
 35 40 45

<210> 13  
 <211> 27  
 <212> PRT  
 <213> Human DEC-205 Leader peptide

<400> 13

Met Arg Thr Gly Trp Ala Thr Pro Arg Arg Pro Ala Gly Leu Leu Met  
 1 5 10 15

Leu Leu Phe Trp Phe Phe Asp Leu Ala Glu Pro  
 20 25

<210> 14  
 <211> 56  
 <212> PRT  
 <213> Human DEC-205 Transmembrane cytoplasmic domain

<400> 14

Tyr Thr Ala Ile Ala Ile Ile Val Ala Thr Leu Ser Ile Leu Val Leu  
 1 5 10 15

Met Gly Gly Leu Ile Trp Phe Leu Phe Gln Arg His Arg Leu His Leu  
 20 25 30

Ala Gly Phe Ser Ser Val Arg Tyr Ala Gln Gly Val Asn Glu Asp Glu  
 35 40 45

Ile Met Leu Pro Ser Phe His Asp  
 50 55

<210> 15  
 <211> 27  
 <212> PRT

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&lt;213&gt; Mouse DEC-205 Leader peptide

&lt;400&gt; 15

Met Arg Thr Gly Arg Val Thr Pro Gly Leu Ala Ala Gly Leu Leu Leu  
1 5 10 15

Leu Leu Leu Arg Ser Phe Gly Leu Val Glu Pro  
20 25

&lt;210&gt; 16

&lt;211&gt; 56

&lt;212&gt; PRT

&lt;213&gt; Mouse DEC-205 Transmembrane cytoplasmic domain

&lt;400&gt; 16

Tyr Thr Gly Ile Ala Ile Leu Phe Ala Val Leu Cys Leu Leu Gly Leu  
1 5 10 15

Ile Ser Leu Ala Ile Trp Phe Leu Leu Gln Arg Ser His Ile Arg Trp  
20 25 30

Thr Gly Phe Ser Ser Val Arg Tyr Glu His Gly Thr Asn Glu Asp Glu  
35 40 45

Val Met Leu Pro Ser Phe His Asp  
50 55

&lt;210&gt; 17

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Human P-selectin Leader peptide

&lt;400&gt; 17

Met Ala Asn Cys Gln Ile Ala Ile Leu Tyr Gln Arg Phe Gln Arg Val  
1 5 10 15

Val Phe Gly Ile Ser Gln Leu Leu Cys Phe Ser Ala Leu Ile Ser Glu  
20 25 30

Leu Thr Asn Gln Lys Glu Val Ala Ala  
35 40

&lt;210&gt; 18

&lt;211&gt; 59

&lt;212&gt; PRT

&lt;213&gt; Human P-selectin Transmembrane cytoplasmic domain

&lt;400&gt; 18

Leu Thr Tyr Phe Gly Gly Ala Val Ala Ser Thr Ile Gly Leu Ile Met  
1 5 10 15

Gly Gly Thr Leu Leu Ala Leu Leu Arg Lys Arg Phe Arg Gln Lys Asp  
20 25 30

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Asp Gly Lys Cys Pro Leu Asn Pro His Ser His Leu Gly Thr Tyr Gly  
 35 40 45

Val Phe Thr Asn Ala Ala Phe Asp Pro Ser Pro  
 50 55

<210> 19  
 <211> 17  
 <212> PRT  
 <213> Human tyrosinase Leader peptide

<400> 19

Met Leu Leu Ala Val Leu Tyr Cys Leu Leu Trp Ser Phe Gln Thr Ser  
 1 5 10 15

Ala

<210> 20  
 <211> 30  
 <212> PRT  
 <213> Human tyrosinase Transmembrane cytoplasmic domain

<400> 20

Cys Arg His Lys Arg Lys Gln Leu Pro Glu Glu Lys Gln Pro Leu Leu  
 1 5 10 15

Met Glu Lys Glu Asp Tyr His Ser Leu Tyr Gln Ser His Leu  
 20 25 30

<210> 21  
 <211> 24  
 <212> PRT  
 <213> Human GLUT4 Leader peptide

<400> 21

Met Pro Ser Gly Phe Gln Gln Ile Gly Ser Glu Asp Gly Glu Pro Pro  
 1 5 10 15

Gln Gln Arg Val Thr Gly Thr Leu  
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<210> 22  
 <211> 43  
 <212> PRT  
 <213> Human GLUT4 Transmembrane Cytoplasmic domain

<400> 22

Arg Val Pro Glu Thr Arg Gly Arg Thr Phe Asp Gln Ile Ser Ala Ala  
 1 5 10 15

Phe His Arg Thr Pro Ser Leu Leu Glu Gln Glu Val Lys Pro Ser Thr  
 20 25 30

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Glu Leu Glu Tyr Leu Gly Pro Asp Glu Asn Asp  
35 40

<210> 23  
<211> 21  
<212> PRT  
<213> Rat endotubulin Leader peptide

<400> 23

Met Cys Leu Pro Ser Cys Leu Leu Ser Ile Trp Val Leu Phe Met Ala  
1 5 10 15

Ala Gln Ser Leu Gly  
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<210> 24  
<211> 66  
<212> PRT  
<213> Rat endotubulin Leader peptide

<400> 24

Ala Ala Pro Val Ser Val Pro Val Ala Val Gly Gly Ala Leu Leu Leu  
1 5 10 15

Phe Leu Leu Leu Leu Gly Leu Gly Gly Trp His Trp Leu Gln Lys Gln  
20 25 30

His Leu Pro Cys Gln Ser Thr Asp Ala Ala Ala Ser Gly Phe Asp Asn  
35 40 45

Ile Leu Phe Asn Ala Asp Gln Val Thr Leu Pro Glu Ser Ile Thr Ser  
50 55 60

Asn Pro  
65

<210> 25  
<211> 23  
<212> PRT  
<213> Mouse LAMP-1 leader peptide

<400> 25

Met Ala Ala Pro Gly Ala Arg Arg Pro Leu Leu Leu Leu Leu Ala  
1 5 10 15

Gly Leu Ala His Gly Ala Ser  
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<210> 26  
<211> 36  
<212> PRT  
<213> Mouse LAMP-1 transmembrane and cytoplasmic domain

<400> 26



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Met Leu Ile Pro Ile Ala Val Gly Gly Ala Leu Ala Gly Leu Val Leu  
 1 5 10 15

Ile Val Leu Ile Ala Tyr Leu Ile Gly Arg Lys Arg Ser His Ala Gly  
 20 25 30

Tyr Glu Thr Ile  
 35

<210> 27  
 <211> 78  
 <212> DNA  
 <213> Rat LIMP II leader peptide

<400> 27  
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 gtcacgctgc tagtggct 78

<210> 28  
 <211> 141  
 <212> DNA  
 <213> Rat LIMP II Transmembrane cytoplasmic domain

<400> 28  
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 gcaccctca tacggacct a 141

<210> 29  
 <211> 78  
 <212> DNA  
 <213> Human LIMP II Leader peptide

<400> 29  
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 gtcacgctgc tgggtggcc 78

<210> 30  
 <211> 141  
 <212> DNA  
 <213> Human LIMP II Transmembrane cytoplasmic domain

<400> 30  
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<210> 31  
 <211> 78  
 <212> DNA  
 <213> Mouse LIMP II Leader peptide

<400> 31  
 atgggcagat gctgcttcta cacggcgggg acgtgtctc tgctgctgct ggtgaccagc 60

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gtcacgctgc tagtggct

78

&lt;210&gt; 32

&lt;211&gt; 141

&lt;212&gt; DNA

&lt;213&gt; Mouse LIMP II Transmembrane cytoplasmic domain

&lt;400&gt; 32

ttggttgta ccaacatacc ctacatcatt atggcactgg gtgtgttctt tggcttggt 60

ttcacgtggc tggcgtgtcg aggacagggg tctatggatg aggggaactgc agatgaaaga 120

gcacccctca tacgaaccta a 141

&lt;210&gt; 33

&lt;211&gt; 81

&lt;212&gt; DNA

&lt;213&gt; Human DEC-205 Leader peptide

&lt;400&gt; 33

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ttcttcgatc tcgaggagcc c 81

&lt;210&gt; 34

&lt;211&gt; 171

&lt;212&gt; DNA

&lt;213&gt; Human DEC-205 Transmembrane cytoplasmic domain

&lt;400&gt; 34

tacacagcaa tagctatcat agttgccaca ctaagtatct tagttctcat gggcggactg 60

atttggttcc tcttccaaag gcaccgtttg cacctggcgg gtttctcatc agttcgatat 120

gcacaaggag tgaatgaaga tgagattatg cttccttctt tccatgacta a 171

&lt;210&gt; 35

&lt;211&gt; 81

&lt;212&gt; DNA

&lt;213&gt; Mouse DEC-205 leader peptide

&lt;400&gt; 35

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tccttcgggc ttgtggagcc t 81

&lt;210&gt; 36

&lt;211&gt; 171

&lt;212&gt; DNA

&lt;213&gt; Mouse DEC-205 Transmembrane cytoplasmic domain

&lt;400&gt; 36

tacacaggca tagccatcct gtttgccgtg ctgtgcctct tagggctcat cagcttggcg 60

atttggttcc tcttgcaacg atcccatatc cgctggaccg gcttctcctc ggttcggtat 120

gaacatggaa ccaacgaaga cgaggtgatg ctcccttctt tccagacta a 171

&lt;210&gt; 37

&lt;211&gt; 123

&lt;212&gt; DNA

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&lt;213&gt; Human P-selectin Leader peptide

&lt;400&gt; 37

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 gca 123

&lt;210&gt; 38

&lt;211&gt; 180

&lt;212&gt; DNA

&lt;213&gt; Human P-selectin Transmembrane cytoplasmic domain

&lt;400&gt; 38

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&lt;210&gt; 39

&lt;211&gt; 51

&lt;212&gt; DNA

&lt;213&gt; Human tyrosinase Leader peptide

&lt;400&gt; 39

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&lt;210&gt; 40

&lt;211&gt; 93

&lt;212&gt; DNA

&lt;213&gt; Human tyrosinase Transmembrane cytoplasmic domain

&lt;400&gt; 40

tgtcgtcaca agagaaagca gttcctgaa gaaaagcagc cactcctcat ggagaaagag 60  
 gattaccaca gcttgtatca gagccattta taa 93

&lt;210&gt; 41

&lt;211&gt; 72

&lt;212&gt; DNA

&lt;213&gt; Human GLUT4 Leader peptide

&lt;400&gt; 41

atgccgtcgg gcttccaaca gataggctcc gaagatgggg aacccctca gcagcgagtg 60  
 actgggaccc tg 72

&lt;210&gt; 42

&lt;211&gt; 129

&lt;212&gt; DNA

&lt;213&gt; Human GLUT4 Transmembrane Cytoplasmic domain

&lt;400&gt; 42

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 aacgactga 129

&lt;210&gt; 43

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<211> 63  
 <212> DNA  
 <213> Rat endotubin Leader peptide

<400> 43  
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 ggc 63

<210> 44  
 <211> 201  
 <212> DNA  
 <213> Rat endotubin Transmembrane cytoplasmic domain

<400> 44  
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 gcagcagcct ctggctttga caatatactc ttcaatgcgg atcaagttac cctcccagaa 180  
 tcaatcacca gtaaccata.g 201

<210> 45  
 <211> 69  
 <212> DNA  
 <213> mouse LAMP-1 leader sequence

<400> 45  
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 ggcgctagc 69

<210> 46  
 <211> 108  
 <212> DNA  
 <213> mouse LAMP-1 transmembrane cytoplasmic domain

<400> 46  
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 gcctacctca ttggcaggaa gaggagtcac gccggctatc agaccatc 108

<210> 47  
 <211> 105  
 <212> DNA  
 <213> human tissue plasminogen activator leader sequence

<400> 47  
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<210> 48  
 <211> 35  
 <212> PRT  
 <213> human tissue plasminogen activator leader sequence

<400> 48  
 Met Asp Ala Met Lys Arg Gly Leu Cys Cys Val Leu Leu Leu Cys Gly  
 1 5 10 15

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Ala Val Phe Val Ser Pro Ser Gln Val Gly Val Gln Asp Pro Cys Val  
20 25 30

Pro Pro Leu  
35